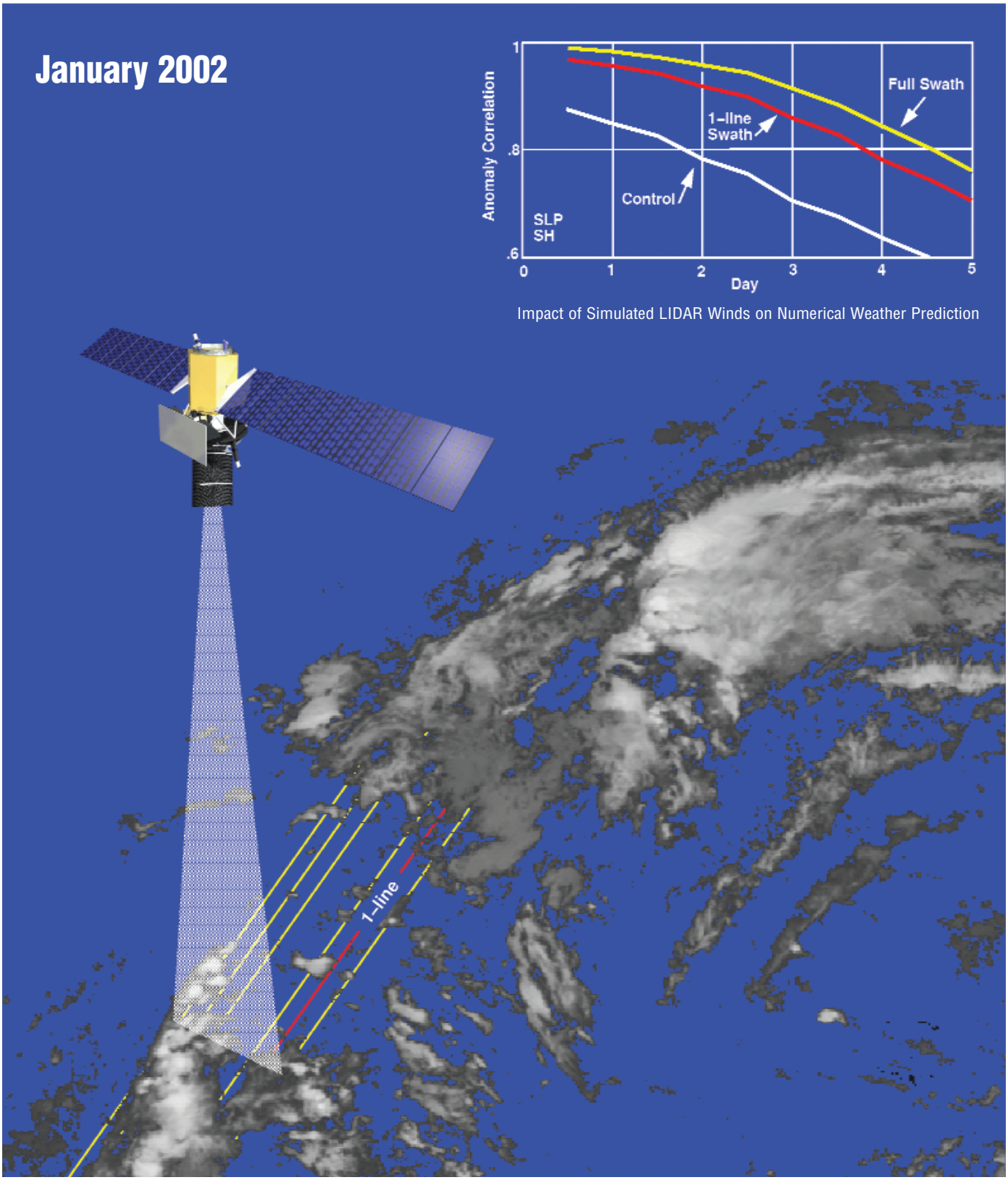
Laboratory for Atmospheres

PHILOSOPHY, ORGANIZATION, MAJOR ACTIVITIES, AND 2001 HIGHLIGHTS



Impact of Simulated LIDAR Winds on Numerical Weather Prediction

National Aeronautics and Space Administration

Goddard Space Flight Center
Greenbelt, MD 20771

NASA GODDARD SPACE FLIGHT CENTER

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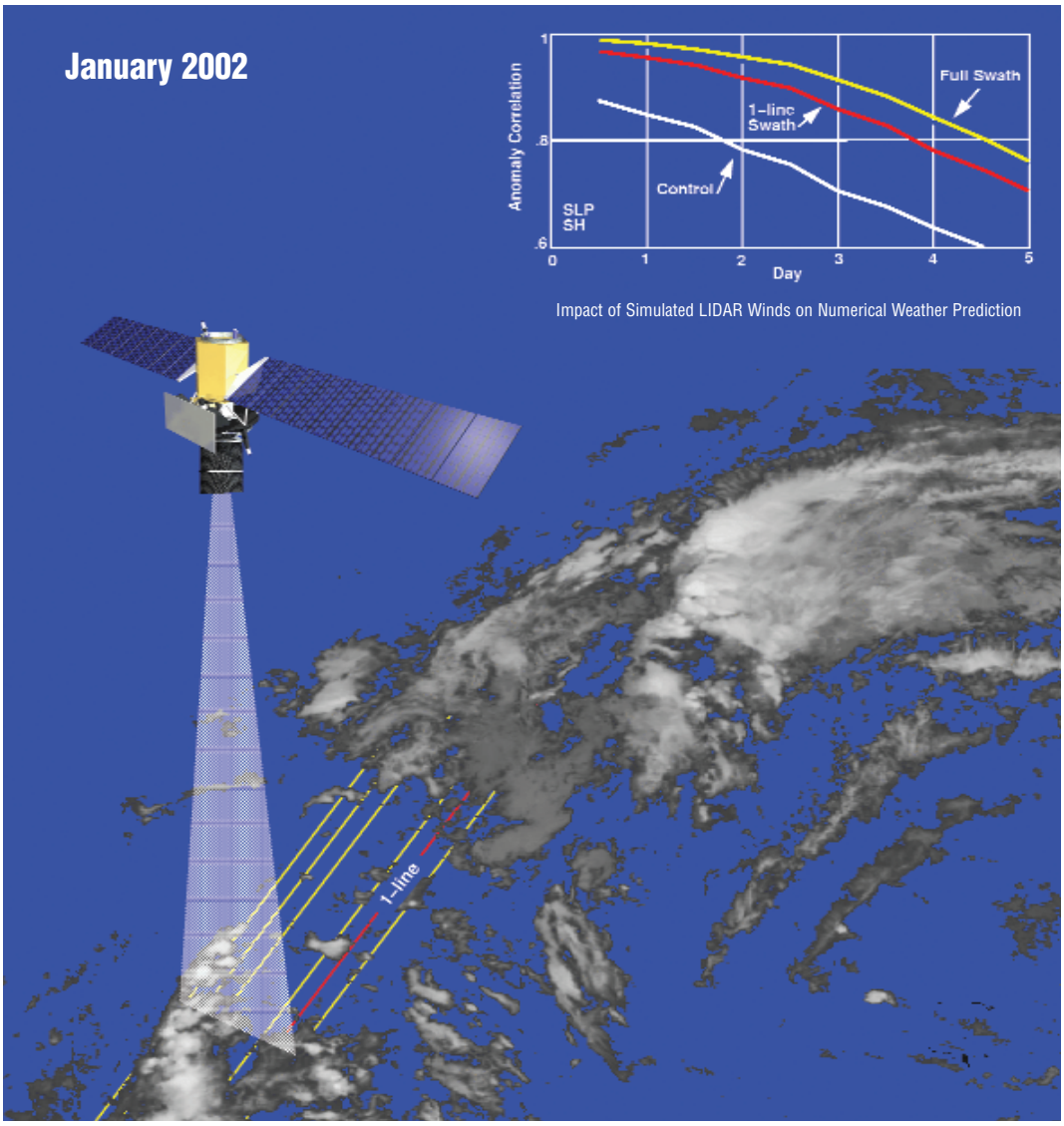

The Laboratory for Atmospheres' Data Assimilation Office (DAO) uses a modeling technique called OSSE (Observing System Simulation Experiment) to study atmospheric monitoring capabilities. In this unique approach, the OSSE synthesizes the observations of a proposed satellite instrument and uses them in a data assimilation to predict the instrument's usefulness in forecasting. The cover shows simulations to evaluate various concepts for obtaining Doppler Wind Lidar (DWL) profiles from space. The drawing shows the cross-track coverage of a DWL in a 400 km orbit and the improved anomaly correlation for sea-level pressure in the southern hemisphere. The anomaly correlation shown on the ordinate in the chart indicates forecast accuracy. A perfect forecast has an anomaly correlation of 1.0, while the limit of useful forecast skill is about 0.6.

Photo courtesy of R. Atlas, J. Ardizzone, J. Terry, and D. Bungato of the Data Assimilation Office; G.D. Emmitt of Simpson Weather Associates; and T. Carnahan and C. Congedo of the Mechanical Systems Analysis and Simulation Branch, NASA Goddard Space Flight Center.